

## Annex B

## Supplier statement of product range test results



1) General product type information								
Product manufacturer	Exide Technologies GmbH							
Manufacturing site of tested product	Büdingen, Germany							
Product model range	Sonnenschein A400							
Product comprising the above model range	see Annex							
Product tested	A412/90 A as a representative of the range							
2) Product test performance information								
Product safe operation in service		IEC 60896-21 test clause result						
6.1	Gas emission (at float voltage and at 2.40 Vpc)	2.27 Vpc - 0.026 ml/Cell x h x Ah / 2.40 Vpc - 0.271 ml/Cell x h x Ah						
6.2	High current tolerance	Passed (2.13 Vpc)						
6.3	Short circuit current and d.c. internal resistance	see Annex						
6.4	Internal ignition from external spark sources	Passed, no evidence of rapid combustion or explosion beyond valve						
6.5	Protection against ground short propensity	< 1mA, passed, no ground short current flow was detected (detection limit 1mA)						
6.6	Content and durability of required markings	Passed						
6.7	Material identification	Passed	Lid: PP					
			Container: PP					
6.8	Valve operation	Before:	Passed: gas release could be detected					
		After:	Passed: gas release could be detected					
6.9	Flammability rating of materials	Lid and case: according to UL94 HB, for all models except those identified as V0 flame retardant: UL94-V0						
6.10	Intercell connector performance	Passed, no hazard (max. Temperature: 48°C)						
Product performance in service		IEC 60896-21 test clause result						
6.11	Discharge capacity	Data for	C <sub>10</sub>	C <sub>8</sub>	C <sub>3</sub>	C <sub>1</sub>	C <sub>0.25</sub>	
			103%	102%	103%	110%	115%	
6.12	Charge retention during storage	Compliant (≥ 70%)						
		91.5%	90.5%	90.8%	91.7%	91.0%	91.3%	
6.13	Float service with daily discharges	Cycles: C af: C ab:	Classification: suitable for "very unreliable mains power" (>300 cycles)					
			950	928	1000			
			84.2%	49.8%	62.6%			
			86.0%	46.6%	73.8%			
6.14	Recharge behaviour	24h:		102%	Passed (≥90%)			
		168h:		102%	Passed (≥98%)			
Product durability in service		IEC 60896-21 test clause result						
6.15	Float service life at 40°C	> 951 days at 40°C Medium duration exposure time						
6.16	Impact of a stress temperature of 55°C or 60°C	> 371 days (C0.25) at 55°C; > 417 days (C3) at 55°C Very long duration exposure time						
6.17	Abusive over-discharge unbalanced string over-discharge test cyclic over-discharge test	Caod =	92.46%			Passed (≥ 80%)		
		Caoc: No.1=	117%	No.2= 115%	No.3=117%	Passed (≥ 90%)		
		after 168h with 2.45 Vpc: 25.0°C					Passed (< 60%)	
6.18	Thermal runaway sensitivity	after 168h with 2.60 Vpc: 24.1°C					Passed (< 60%)	
		Cals = 111%, No damage					Passed (≥ 95%)	
6.19	Low temperature sensitivity	Max. dimensional change: Length: 3.0 mm (1%) Width: 11.3 mm (4%)						
6.20	Dimensional stability at elevated internal pressure and temperature	Passed (no leakage)						
6.21	Stability against mechanical abuse of units during installation							
Company name:	GNB Industrial Power, a division of Exide Technologies, Lda							
Company officer:	José Barreiros, Director Product Development Industrial EMEA							
Address/phone/fax/e-mail:	Av. Dr. Carlos Leal No.4, 2600-729 Castanheira do Ribatejo, Portugal / +351 263 286 946 / jose.barreiros@exide.com							
Signature/date/place:	Castanheira do Ribatejo, May 10, 2019							

**NOTE** The data in above Product Range Test Result Supplier Statement must comply with the test methods and degree of detail specified in the requirements 6.1 to 6.21 of the IEC 60896-21 and 60896-22.

## Annex

### Supplier statement of product range test results

2) Product test performance information																																																																										
Product manufacturer	Exide Technologies GmbH																																																																									
Manufacturing site of tested product	Büdingen, Germany																																																																									
Product model range	A400																																																																									
Clause 6.3 Short circuit and DC internal resistance <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 20%;">I<sub>sc</sub> [A]</th> <th style="width: 20%;">R<sub>i</sub> [mOhm]</th> </tr> </thead> <tbody> <tr><td>A412 / 5.5 SR</td><td>138</td><td>90,8</td></tr> <tr><td>A412 / 8.5 SR</td><td>198</td><td>63,3</td></tr> <tr><td>A412 / 12 SR</td><td>174</td><td>72,6</td></tr> <tr><td>A412 / 20 G5</td><td>445</td><td>27,8</td></tr> <tr><td>A412 / 32 G6</td><td>667</td><td>18,5</td></tr> <tr><td>A412 / 32 F10</td><td>667</td><td>18,5</td></tr> <tr><td>A412 / 50 A</td><td>1050</td><td>11,8</td></tr> <tr><td>A412 / 50 F10</td><td>1050</td><td>11,8</td></tr> <tr><td>A412 / 65 G6</td><td>1229</td><td>10,0</td></tr> <tr><td>A412 / 65 F10</td><td>1229</td><td>10,0</td></tr> <tr><td>A412 / 85 F10</td><td>1099</td><td>11,3</td></tr> <tr><td>A412 / 90 A</td><td>1744</td><td>7,1</td></tr> <tr><td>A412 / 90 F10</td><td>1744</td><td>7,1</td></tr> <tr><td>A412 / 100 A</td><td>1917</td><td>6,5</td></tr> <tr><td>A412 / 100 F10</td><td>1917</td><td>6,5</td></tr> <tr><td>A412 / 120 A</td><td>1576</td><td>7,8</td></tr> <tr><td>A412 / 120 F10</td><td>1576</td><td>7,8</td></tr> <tr><td>A412 / 120 FT</td><td>1134</td><td>11,2</td></tr> <tr><td>A412 / 165 A</td><td>2419</td><td>2,6</td></tr> <tr><td>A412 / 165 F10</td><td>2419</td><td>2,6</td></tr> <tr><td>A412 / 170 FT</td><td>2432</td><td>5,1</td></tr> <tr><td>A412 / 180 A</td><td>1994</td><td>6,2</td></tr> <tr><td>A412 / 180 F10</td><td>1994</td><td>6,2</td></tr> </tbody> </table>				I <sub>sc</sub> [A]	R <sub>i</sub> [mOhm]	A412 / 5.5 SR	138	90,8	A412 / 8.5 SR	198	63,3	A412 / 12 SR	174	72,6	A412 / 20 G5	445	27,8	A412 / 32 G6	667	18,5	A412 / 32 F10	667	18,5	A412 / 50 A	1050	11,8	A412 / 50 F10	1050	11,8	A412 / 65 G6	1229	10,0	A412 / 65 F10	1229	10,0	A412 / 85 F10	1099	11,3	A412 / 90 A	1744	7,1	A412 / 90 F10	1744	7,1	A412 / 100 A	1917	6,5	A412 / 100 F10	1917	6,5	A412 / 120 A	1576	7,8	A412 / 120 F10	1576	7,8	A412 / 120 FT	1134	11,2	A412 / 165 A	2419	2,6	A412 / 165 F10	2419	2,6	A412 / 170 FT	2432	5,1	A412 / 180 A	1994	6,2	A412 / 180 F10	1994	6,2
	I <sub>sc</sub> [A]	R <sub>i</sub> [mOhm]																																																																								
A412 / 5.5 SR	138	90,8																																																																								
A412 / 8.5 SR	198	63,3																																																																								
A412 / 12 SR	174	72,6																																																																								
A412 / 20 G5	445	27,8																																																																								
A412 / 32 G6	667	18,5																																																																								
A412 / 32 F10	667	18,5																																																																								
A412 / 50 A	1050	11,8																																																																								
A412 / 50 F10	1050	11,8																																																																								
A412 / 65 G6	1229	10,0																																																																								
A412 / 65 F10	1229	10,0																																																																								
A412 / 85 F10	1099	11,3																																																																								
A412 / 90 A	1744	7,1																																																																								
A412 / 90 F10	1744	7,1																																																																								
A412 / 100 A	1917	6,5																																																																								
A412 / 100 F10	1917	6,5																																																																								
A412 / 120 A	1576	7,8																																																																								
A412 / 120 F10	1576	7,8																																																																								
A412 / 120 FT	1134	11,2																																																																								
A412 / 165 A	2419	2,6																																																																								
A412 / 165 F10	2419	2,6																																																																								
A412 / 170 FT	2432	5,1																																																																								
A412 / 180 A	1994	6,2																																																																								
A412 / 180 F10	1994	6,2																																																																								